

# **COW/CALF CORNER**

The Newsletter

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Derrell S. Peel, Oklahoma State University Extension Livestock Marketing Specialist

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## **Short Run Adjustments to Changing Cattle Market Conditions**

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Economic principles provide guidance on how cattle producers should adjust production in response to wildly fluctuating output and input values. Most production decisions are issues of allocating resources and revolve around the following questions: What to produce? How much to produce? How to produce it? Though the question of what to produce and the general production system that determines how to produce may be largely fixed in the short

run, changing market values for outputs and inputs mean that adjustments are necessary to maximize profits.

Taking the decision about what to produce as a given in the short run, the question of how much to produce depends on the value of the output. Most production processes are subject to diminishing returns, which mean that at some point additional inputs will result in less additional output than before. This means, for example, that cow-calf producers need to determine the optimal weaning weight of calves (or better yet, the optimal number of pounds of calf produced per cow exposed to bulls), which may not be the same as the maximum level of production. An obvious example is using creep feed to increase weaning weight. The question is whether the additional pounds are worth more than the cost of the creep feed. The same is true for genetics, nutrition, and health inputs. This principle also implies that when the value of the output increases, the optimal level of production also increases, all else being equal, and vice versa for decreased output value.

A similar principle applies to the use of inputs. Changes in the value (cost) of inputs imply changes in the optimal level of use of the input. For a given output value, input use should increase if input cost decreases and decrease if input cost increases. Following the earlier example, an increase in the cost of creep feed means that less creep feed should be used to maximize profits. In another example, higher fertilizer costs suggest less fertilizer use is optimal for a given forage value. Thus, higher fertilizer prices may mean using less total fertilizer and targeting use to those areas with the highest marginal productivity. The optimal level of input use is the point at which the value of additional output produced equals the cost of the additional input.

The final important economic principle is substitution of inputs when relative values change. As noted above, the production system may be fixed in the short run but there is usually some degree of flexibility to choose among various inputs. A common livestock example is choosing among alternative feed ingredients in a ration. Obviously, when one feed gets more expensive, it makes other feeds more attractive. As with the output and input decisions, it is relative values that matter. If one has a choice of two inputs and both double in price, then the optimal choice between them does not change but the optimal level of use of either one is reduced according to the previous discussion.

Each of the economic principles was stated in the context of “all else being equal” but, of course, all else is not equal. The question of optimal level of production and input use are more complicated when both input and output values are changing at the same time. This is the biggest challenge in today’s market environment. Higher output prices suggest increased

production but higher input costs suggest lower input use (and thus production) so the net decision is not obvious. Volatile input and output values mean that questions of optimal production are subject to frequent changes. You have to figure out what is optimal and then refigure it frequently as market condition change. One thing is clear; just because it used to work or you have always done something a certain way doesn't mean a thing in today's volatile markets.

Finally, this discussion started with the idea that the question of what to produce and the general production system used for production may be fixed in the short run. However, if changes in relative input or output values are permanent or very long term in nature, these questions should be revisited as those answers may change as well in the long run. In the cattle industry, questions of what, how much and how to produce are subject to short run adjustments and long run changes in cow-calf, stocker and feedlot sectors as we experience short run fluctuations and possibly long term changes in relative input and output values.

## **Economic Advantages to Implanting Nursing Calves in 2012**

Glenn Selk, Oklahoma State University Emeritus Extension Animal Scientist

Many new technologies have been made available to the beef industry over the last 75 years. Few have the potential return on investment as do growth promoting implants for nursing calves. The term implant is used to refer to a group of products used in the cattle industry that increase rate of growth. Each type or brand of implant has its own specific applicator, which is used to properly administer the implant. Implants contain natural or synthetic anabolic compounds that produce physiological responses similar to hormones that are already produced in varying quantities in the body. Calves intended for "natural" or "organic" markets cannot and should not be implanted.

Implants cleared for use in nursing calves contain a lower dose of the active ingredient compared to products cleared for use with older cattle. These "calf" implants are typically administered

when calves are between 2 and 4 months of age. Research summaries have shown that implants given during the suckling phase will increase average daily gain of steer calves by 0.1 pound per day. The response in heifer calves is slightly higher at 0.12 to 0.14 pound per day. Over 150 days of the remaining nursing period, this additional gain can amount to 15 pounds in improved weaning weights in steers and about 18 to 21 pounds in weaned heifer calves.

The value of this additional weight gain is difficult to accurately predict. Heavier calves often are priced slightly less per pound than lighter calves. In today's 2012 market, an estimate of 1 dollar per pound of added gain should be conservative to evaluate the efficacy of implanting. Assuming a cost of \$1.00 per implant, a \$15 to \$21 return on each implant dollar invested can be expected.

Producers often raise the question, "Is it safe to implant replacement heifers?" Research has shown that heifer calves implanted one time at about 2 months of age had very little, if any impact on subsequent conception rates. An overall average reduction of only 3 to 4% in first breeding season pregnancy rates were found when heifers were implanted once with estrogen and progesterone-containing implants. However, heifers that were implanted at or within a day of birth, after weaning, or multiple times had much lower reproductive rates than non-implanted heifers. Heifers that are known at birth, or at calf-working time, to be replacement females, should **not** be implanted. There is nothing to gain. Bull calves that may remain as bulls to become herd sires should not be implanted. Once again, the key is to follow label directions precisely. (Source: [Selk, G. E., 1997. Implants for Suckling Steer and Heifer Calves and Potential Replacement Heifers. Symposium: Impact of Implants on Performance and Carcass Value of Beef Cattle. P-957. Oklahoma Agricultural Experiment Station.](#) )

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